

AMENDMENT

Please amend the claims as follows:

1. – 4. (Cancelled)
5. (Previously presented) A recombinant adenovirus that comprises SEQ ID NO:1 or SEQ ID NO:2.
6. (Withdrawn) The recombinant vector of claim 3 which is replication-restricted to neoplastic cells.
7. (Withdrawn) The recombinant vector of claim 6 which comprises SEQ ID NO:1 or SEQ ID NO:2.
8. (Withdrawn) The recombinant vector of claim 3, wherein the recombinant adenovirus comprises a tissue specific promoter or an inducible promoter substituted for the E4 promoter.
9. (Withdrawn) The recombinant vector of claim 6 which comprises SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16.
10. (Cancelled)
11. (Previously presented) The method of claim 13 wherein the adenovirus death protein comprises SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, or SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11 or SEQ ID NO:12.
12. (Previously presented) The method of claim 13, wherein the adenovirus vector comprises a recombinant adenovirus lacking expression of at least one E3 protein selected from the group consisting of: gp19K; RID α ; RID β and 14.7K.

13. (Currently amended) A method for treating cancer in an animal having a tumor promoting death of a neoplastic cell comprising administering to the tumor an adenovirus vector wherein contacting the neoplastic cell with an adenovirus vector, wherein the neoplastic cell is contained in a tumor in a patient and the contacting step comprises administering the adenovirus vector to neoplastic cells of the tumor, and further wherein:

- (a) ~~at least one adenoviral vector is introduced into the neoplastic cell, and~~
- (b) ~~said adenovirus vector is replication-competent in neoplastic cells and overexpresses an adenovirus death protein (ADP), wherein overexpression is defined as overexpression relative to a control adenovirus vector that has the E3 structure of dl309 but otherwise has the same genetic structure as the overexpressing vector.~~

14. (Currently amended) The method of claim 13, further comprising the step of passively immunizing the animal~~patient~~ against the adenovirus vector~~recombinant adenovirus~~.

15. (Currently amended) The method of claim 14, wherein the ~~recombinant~~ adenovirus vector comprises SEQ ID NO:1 or SEQ ID NO:2.

16. (Withdrawn) The method of claim 12, wherein the vector is replication-restricted to neoplastic cells.

17. (Withdrawn) The method of claim 16, wherein the vector is a recombinant adenovirus comprising SEQ ID NO:1 or SEQ ID NO:2.

18. (Withdrawn) The method of claim 12, wherein the recombinant adenovirus comprises a tissue specific promoter or an inducible promoter substituted for the E4 promoter.

19. (Withdrawn) The method of claim 18, wherein the recombinant adenovirus which comprises SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16.

20. (Original) The method of claim 13, further comprising treating the tumor with radiation.

21. (Previously presented) The method of claim 20 comprising administering more than one distinct type of recombinant adenovirus to the tumor and treating the tumor with radiation, wherein at least one recombinant adenovirus is replication-defective.

22. (Original) The method of claim 13, further comprising treating the tumor with chemotherapy.

23. (Withdrawn) The method of claim 22 comprising administering more than one recombinant adenovirus to the tumor and treating the tumor with chemotherapy.

24. (Currently amended) The method of claim 13, further comprising administering to the tumor one or more replication-defective adenoviruses, wherein each replication-defective adenovirus expresses an anti-cancer gene product, and wherein the adenovirus vector ~~recombinant adenovirus~~ facilitates the spread of the replication-defective adenovirus in the tumor.

25. (Withdrawn) A composition comprising:
a first recombinant virus which is replication competent in a neoplastic cell and overexpresses an adenovirus death protein; and
a second recombinant virus which is replication defective and which expresses an anti-cancer gene product, wherein the first recombinant virus complements replication of the second recombinant virus.

26. (Withdrawn) The composition of claim 25 wherein the first recombinant virus comprises a recombinant adenovirus lacking expression of at least one E3 protein selected from the group consisting of: gp19K; RID α ; RID β and 14.7K.

27. (Withdrawn) The composition of claim 26 wherein the recombinant adenovirus comprises a nucleotide sequence selected from the group consisting of: SEQ ID NO:1; SEQ ID NO:2; SEQ ID NO:14; SEQ ID NO:15; SEQ ID NO:16; SEQ ID NO:3; or SEQ ID NO:4.

28. (Withdrawn) The method of claim 13, wherein the adenovirus vector is replication defective, or it is replication-restricted to dividing cells or neoplastic cells.

29. (Withdrawn) The method of claim 28, wherein the adenovirus vector comprises a mutation in an E1A gene that renders the adenovirus incapable of expressing an E1A viral protein which binds the pRB and the p300/CBP proteins.

30. (Withdrawn) The method of claim 28, wherein an E4 promoter of said recombinant adenovirus vector is substituted with a promoter, which is activated in neoplastic cells.

31. (Withdrawn) The method of claim 30, wherein the promoter, which is activated in neoplastic cells, is the surfactant protein B ("SPB") promoter.

32. (Currently amended) The method of claim ~~13~~28, wherein ~~the overexpression~~ relative to dl309a control virus is detectable by western blot, cell lysis, virus release or by a cell spreading assay.

33. (Currently amended) The method of claim 13, wherein the ~~recombinant~~ adenovirus vector lacks expression of at least one E3 protein selected from the group consisting of gp19K, RID α , RID β and 14.7K.

34. (Currently amended) The method of claim 33, wherein the ~~recombinant~~ adenovirus vector lacks expression of the gp19K protein.

35. (Currently amended) The method of claim 33, wherein the ~~recombinant~~ adenovirus vector lacks expression of the RID α protein.

36. (Currently amended) The method of claim claim 33, wherein the ~~recombinant~~ adenovirus vector lacks expression of the RID β protein.

37. (Currently amended) The method of claim 33, wherein the ~~recombinant~~ adenovirus vector lacks expression of the 14.7K protein.

38. (Currently amended) The method of claim 33, wherein the ~~recombinant~~ adenovirus vector lacks expression of the gp19K, RID α , RID β and 14.7K proteins.

39. (Currently amended) The method of claim 28, wherein the ~~recombinant~~ adenovirus vector comprises a deletion in the E3 region that removes a splice site for any of the E3 mRNAs.

40. (Currently amended) The method of claim 13, wherein the ~~recombinant~~ adenovirus vector comprises at least one deletion in the E3 region, wherein the at least one deletion comprises a sequence that encodes at least one E3 protein, wherein the protein is selected from the group consisting of gp19K, RID α , RID β , and 14.7K.

41. (Previously presented) The method of claim 40, wherein the at least one deletion comprises a sequence that encodes the gp19K, RID α , RID β and 14.7K proteins.

42. (Previously presented) The method of claim 41, wherein the at least one deletion further comprises a sequence that encodes the 6.7K protein.

43. (Previously presented) The method of claim 41, wherein the at least one deletion further comprises a sequence that encodes the 12.5K protein.

44. (Previously presented) The method of claim 41, wherein the at least one deletion further comprises a sequence that encodes the 6.7K and 12.5K proteins.

45. – 59. (Cancelled)

60. (Currently amended) A method for treating cancer in an animal having a tumor~~A method for promoting death of a neoplastic cell contained in a tumor in a patient~~, the method comprising administering to the tumor an adenovirus vector that is replication-competent in neoplastic cells and expresses an adenovirus death protein (ADP), wherein:

- a) the ADP is expressed from an ADP coding sequence positioned under the control of a promoter other than the endogenous promoters for ADP;
- b) the adenovirus vector comprises a deletion in the E3 region that removes a splice site for an E3 mRNA;
- c) the ADP is expressed from an ADP coding sequence flanked by a pre-mRNA splicing and cleavage/polyadenylation signal other than the pre-mRNA splicing and cleavage/polyadenylation signal normally associated with the ADP gene, and/or
- d) the ADP is expressed from an ADP coding sequence that is positioned downstream of the coding sequence for another adenovirus mRNA, together with a sequence on the 5' side of the ADP coding sequence that allows for internal initiation of translation of ADP.

61. (Previously presented) The method of claim 60 wherein the ADP comprises the sequence of SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11 or SEQ ID NO:12.

62. (Currently amended) The method of claim 60, further comprising the step of passively immunizing the animal~~patient~~ against the recombinant-adenovirus vector.

63. (Currently amended) The method of claim 62, wherein the recombinant adenovirus vector comprises SEQ ID NO:1 or SEQ ID NO:2.

64. (Previously presented) The method of claim 60, further comprising treating the tumor with radiation.

65. (Previously presented) The method of claim 64 comprising administering more than one distinct type of recombinant adenovirus to the tumor and treating the tumor with radiation, wherein at least one recombinant adenovirus is replication-defective.

66. (Previously presented) The method of claim 60, further comprising treating the tumor with chemotherapy.

67. (Currently amended) The method of claim 60, further comprising administering to the tumor one or more replication-defective adenoviruses, wherein each replication-defective adenovirus expresses an anti-cancer gene product, and wherein the ~~recombinant-competent~~ adenovirus vector facilitates the spread of adenoviruses in the tumor.

68. (Previously presented) The method of claim 60, wherein the ADP is expressed from an ADP coding sequence positioned under the control of promoter other than the endogenous promoters for ADP.

69. (Previously presented) The method of claim 68, wherein the ADP coding sequence is positioned under the control of a promoter that is exogenous to adenovirus.

70. (Previously presented) The method of claim 60, wherein the ADP coding sequence is positioned behind a coding sequence for another adenovirus mRNA together with a sequence on the 5' side of the ADP coding sequence that allows for internal initiation of translation of ADP.

71. (Previously presented) The method of claim 70, wherein the sequence on the 5' side of the ADP coding sequence that allows for internal initiation of translation of ADP is an Ad tripartite leader or a viral internal ribosome initiation sequence.

72. (Previously presented) The method of claim 60, wherein the adenovirus vector comprises a deletion in the E3 region that removes a splice site for an E3 mRNA.

73. (Previously presented) The method of claim 72, wherein the adenovirus vector lacks expression of at least one E3 protein selected from the group consisting of gp19K, RID α , RID β , and 14.7K.

74. (Previously presented) The method of claim 73, wherein the adenovirus vector lacks expression of each of gp19K, RID α , RID β , and 14.7K.

75. (Previously presented) The method of claim 74, wherein the adenovirus additionally lacks expression of the E3 6.7K and 12.5K proteins.

76. (Withdrawn) The method of claim 60, wherein the adenovirus vector is replication-defective.

77. (Withdrawn) The method of claim 76, wherein the adenovirus vector is replication-restricted to neoplastic cells.

78. (Withdrawn) The method of claim 60, wherein the adenovirus vector comprises a mutation in its E1 region.

79. (Withdrawn) The method of claim 78, wherein the adenovirus vector comprises a 1101/1107 mutation in its E1A coding region.

80. (Withdrawn) The method of claim 60, wherein the adenovirus vector comprises an adenoviral gene essential for replication positioned under the control of a tissue specific or tumor specific promoter.

81. (Withdrawn) The method of claim 80, wherein the adenovirus vector comprises an E4 gene positioned under the control of a tissue specific promoter.

82. (Withdrawn) The method of claim 80, wherein the promoter is a transcriptional regulatory element, a prostate specific antigen promoter, a human alpha-lactalbumin promoter, a mammoglobin promoter, a surfactant protein B promoter, a factor VII promoter, or a survivin promoter.

83. (Withdrawn) The method of claim 60, wherein the adenovirus vector comprises an adenoviral gene essential for replication under the control of an inducible promoter.

84. (Withdrawn) The method of claim 83, wherein the inducible promoter is a metallothionein promoter, a glucocorticoid promoter, a tetracycline response promoter or a heat shock promoter.

85. – 96. (Cancelled)

97. (Previously presented) The method of claim 60, wherein the adenovirus vector is an Ad1, Ad2, Ad5 or Ad6 vector.

98. (Previously presented) The method of claim 60, wherein the adenovirus vector is administered to the tumor by injection of vector intravenously or intrathecally.

99. (Previously presented) The method of claim 60, wherein the adenovirus vector is administered to the tumor by direct injection of the tumor.

100. (Currently amended) The method of claim 60, wherein the animal patient is passively immunized against the recombinant adenovirus.

101. (New) A method for treating cancer in an animal having a tumor, the method comprising administering to the tumor an adenovirus vector wherein said adenovirus vector is replication-competent in neoplastic cells and overexpresses an adenovirus death protein (ADP).

102. (New) A method for treating cancer in an animal having a tumor, the method comprising administering to the tumor an adenovirus vector wherein said adenovirus vector is replication-competent in neoplastic cells and overexpresses an adenovirus death protein (ADP), wherein overexpression is effected by one of more of the following modifications:

- a) the ADP is expressed from an ADP coding sequence positioned under the control of a promoter other than the endogenous promoters for ADP;
- b) the adenovirus vector comprises a deletion in the E3 region that removes a splice site for an E3 mRNA;
- c) the ADP is expressed from an ADP coding sequence flanked by a pre-mRNA splicing and cleavage/polyadenylation signal other than the pre-mRNA splicing and cleavage/polyadenylation signal normally associated with the ADP gene, and/or
- d) the ADP is expressed from an ADP coding sequence that is positioned downstream of the coding sequence for another adenovirus mRNA, together with a sequence on the 5' side of the ADP coding sequence that allows for internal initiation of translation of ADP.

103. (New) The method of claim 32, wherein the overexpression relative to a control virus is detectable by western blot

104. (New) The method of claim 32, wherein the overexpression relative to a control virus is detectable by cell lysis

105. (New) The method of claim 32, wherein the overexpression relative to a control virus is detectable by virus release

106. (New) The method of claim 32, wherein the overexpression relative to a control virus is detectable by a cell spreading assay.

107. (New) The method of claim 60, wherein the animal is a human.

108. (New) The method of claim 13, wherein the animal is a human.